








Importance of research and development investments in the industrial health sector

Summary

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R&D in the industrial health sector (IHS) – Key figures 2019

€	Gross value added (GVA): 6.4 billion Euro. 7.8% of total IHS GVA.
	IHS R&D is growing at an above-average rate.
	55,000 employees in IHS R&D (5.3% of all IHS employees). The number of IHS R&D employees has increased by an average of 5.6% per year since 2010. This is twice as much as the growth of all IHS employees (2.5% per year). By comparison, automotive sector employment growth is 2.1% per year.
€	GVA from IHS R&D has increased by an average of 5.4% per year since 2010. GVA generated by IHS R&D is growing more dynamically than overall IHS GVA (4.1% annual growth) and the aeronautic sector (5.2% annual growth).

	<p>IHS R&D employees supported an additional 77,180 jobs for the overall German economy in 2019 through spill-over effects.</p> <p>Total economic footprint¹ of IHS R&D: 132,180 employees.</p> <p>2 employees in IHS R&D support 3 further jobs in the overall economy.</p>
	<p>IHS R&D generated 5.4 billion GVA for the overall German economy in 2019 through indirect effects.</p> <p>Total economic footprint² of IHS R&D: 11.8 billion Euro GVA.</p> <p>1 Euro GVA generated by IHS R&D creates an additional 0.85 Euro GVA for the overall economy.</p>
	<p>15% R&D intensity.³</p> <p>Exceeds the “Europe 2020 strategy” objective of 3% of EU GDP for R&D by a factor of 5.</p> <p>By comparison: mechanical engineering 6.9% electrical/electronics industry 6.0%.</p>
	<p>7.8% R&D commitment.⁴</p> <p>Indicator for promotion of domestic R&D; describes the degree of economic sustainability.</p> <p>By comparison: mechanical engineering: 4.3% electrical/electronics industry: 3.2%.</p>
	<p>Conclusion: This study shows how well Germany is positioned as a location for research and development (R&D) in the industrial health sector (IHS). The sector’s significant R&D expenditures generate and secure future gross value added. Furthermore, the commitment to R&D secures employment for the wider economy. The success of Germany as an R&D location was demonstrated by the sector’s rapid and impressive reaction to the corona pandemic since the start of 2020 and through Germany’s leading role in the areas of vaccine and diagnostics development. These investments offer great opportunities for the further expansion and development of research in Germany.</p> <p>However, the study also shows that the sector’s growth dynamic is currently falling behind and that development of the IHS has plateaued. As a result, future efforts should aim to reinvigorate the known growth potential of IHS. There needs to be a separate discussion on how this stagnation in growth can be turned around and what measures need to be taken to maintain and enhance the importance of IHS for Germany as a research location.</p>

¹ Definition of economic footprint: describes the overall economic importance of IHS R&D on the basis of economic indicators and comprises the direct, indirect and induced effects of the sector on the overall economy in Germany.

² See above

³ Definition of R&D intensity: describes research expenditure as a share of the sector’s overall gross value added. The greater the R&D intensity, the stronger the focus of the sector on securing its innovation capacity.

⁴ Definition of R&D commitment: highlights the share of gross value added created by research activities as a percentage of the sector’s overall gross value added.

IHS as a factor for prosperity and employment in Germany

The industrial health sector (IHS) is an indispensable part of the health sector and contributes to the positive development of the sector overall in Germany. In 2019, IHS accounted for 2.6% of the entire German economy with 81.2 billion Euro of gross value added (GVA). In addition, the sector is now one of the largest employers in Germany with around one million employees (2.3% of all jobs).

Since 2010, both IHS GVA and the number of employees have increased. GVA grew on average by 4.1% per year, and there has been an annual rise of 2.5% in employment. This means that IHS has expanded more dynamically not only vis-à-vis the overall German economy (3.3% GVA growth and 1.1% employment growth) but also in comparison with other sectors e.g., growth in IHS GVA has outpaced that of Information and Communication Technology (3.7% GVA growth per year). In terms of employment, IHS recorded even stronger growth than the automotive sector (2.1% employee growth).

Accordingly, IHS can be considered a key future contributor to innovation and value added in Germany. A further distinguishing characteristic of IHS is the benefit to society generated by the sector. By developing innovative products, IHS is a central element within the value chain of health and enables the production of healthcare products and the provision of important health services. The importance of the sector's direct economic inputs is intensified by the deployment of goods and services from other sectors.

IHS' substantial spill-over effects and continuous growth over the last decade demonstrate the strong, ongoing interlinkages of IHS with other sectors as well as its stabilising effect on the overall economy. Beyond direct GVA effects of 81 billion Euro in 2019, the sector also generates indirect and induced effects of 82 billion Euro resulting in a total economic footprint of 163 billion Euro⁵. This positive and lasting influence of IHS on the overall economy and society makes it one of the leading sectors in Germany.

Importance of IHS R&D for Germany as a research location

Support for research and development (R&D) is regarded as fundamental to secure competitiveness and long-term economic growth in Germany. R&D investment generates knowledge, which is a driver for technological progress in a nation's economy. In economic theory, it counts as a decisive factor for long-term economic growth and is of particular significance for an economy lacking in natural resources such as Germany's.

Moreover, R&D is also deemed to be essential for shaping economic and social progress. This is underlined by an agreement between government parties that seeks to increase R&D investments to a share of at least 3.5% of GDP by 2025. This target has also been incorporated in the Federal Government's High-tech Strategy 2025⁶.

R&D's stabilising effect on the economy⁷ allows political decision-makers to promise and deliver sustainable growth and competitiveness. Numerous comparative empirical assessments (e.g. availability of data, immigration of highly skilled workers) confirm that countries which invest more

⁵ Bundesministerium für Wirtschaft und Energie (BMWi) (2020): Gesundheitswirtschaft – Fakten & Zahlen. Ergebnisse der Gesundheitswirtschaftlichen Gesamtrechnung, Ausgabe 2019.

⁶ Hightech-Strategie 2025, "3.5% of economic output for research and development", 2020, <https://www.hightechforum.de/beratungsthemen/35-prozent-ziel/>.

⁷ European Commission, "Europe 2020: A strategy for smart, sustainable and inclusive growth", 2010.

strongly in R&D recover significantly more rapidly from economic crises⁸. In combination with the high returns on State-sponsored R&D projects, this produces a highly effective policy instrument for having a positive impact on the overall economy⁹. Furthermore, the industrial health sector is a key industry with reference to the maintenance of domestic R&D as it contributes to the prosperity of the research location and job creation.

In light of the ongoing pandemic and its effects, the IHS sector offers future stability and security for Germany as a research location if the requisite framework conditions are maintained and expanded. This is also necessary to restore Germany to its former leading position as an attractive research location. For example, Germany has slipped from second to fifth position in clinical trials within just a few years¹⁰ – a consequence of the less attractive framework and locational conditions in Germany. In addition, it is important to improve IHS data access while maintaining the highest possible data protection standards and enhancing the deployment of digital technologies. By doing so, the innovation potential of the sector can be unfolded while improving healthcare for patients in Germany.

The consequences of the COVID-19 pandemic will also undoubtedly have considerable implications for the entire health sector and the development of health infrastructure. The pandemic underscores the need for reinforced investments in R&D. The recent months have shown how closely healthcare is intertwined with IHS and in particular its research and development activities. Functioning healthcare as well as a successful rebooting of the economy are conceivable only in coordination with the sector and with the continuous production of Personal Protective Equipment, ventilation and diagnostics systems, disinfectant agents, and pharmaceuticals. Alongside these products, excellent expertise in Germany, the sharing of knowledge between scientists, service providers, industry, and decision-makers as well as cooperation agreements have proven to be decisive factors. In summary, COVID-19 has shown that IHS makes a decisive contribution to security of supply, and the health sector has proven to be an indispensable partner in combating the pandemic.

⁸ OECD, 2009. Policy Responses to the Economic Crisis: Investing in Innovation for Long-Term Growth. ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, page 5 et seq.

⁹ European Union Delegation to the United States, 2010. Europe 2020: A European strategy for smart, sustainable, and inclusive growth. Washington DC, USA: European Union Delegation of the United States, page 11 et seq.

¹⁰ vfa-Positionspapier: Forschungs- und Biotech-Standort Deutschland, August 2020.

Conclusion and recommendations for action



To prevent the declining growth dynamic of R&D investment, locational adjustments are needed that reflect the changed societal and economic requirements and needs of the sector. This serves not only to maintain Germany's competitiveness but also to secure its leading position as a location for knowledge and research at the international level.

Targeted support for R&D in the industrial health sector in Germany has direct positive consequences for employment and GVA within the sector. It also contributes to the overall economy through its manufacturing strength and perception as an international research hub. Hence, investments in domestic IHS R&D would establish Germany as a leading knowledge and research location with a sustainable research landscape geared towards the future and innovative care in Germany.

The study shows that GVA and employment growth in IHS R&D has stagnated since 2018 compared to the time period from 2010 to 2017. A similar development was observed across the entire industrial health sector. As a result of the COVID-19 pandemic and the associated economic impacts, a further decline of the sector in 2020 is widely feared. To prevent this, locational factors hampering the innovative strength of IHS must now be addressed. Long authorisation procedures for approval studies, low levels of support for research, and in particular sluggish digitalization combined with limited data access further reduce Germany's attractiveness as a research location in global competition. These factors prevent IHS from realizing its full potential as a driver for growth and an engine for jobs. The value contribution of the industrial health sector – in terms of its economic footprint – is not yet widely known nor recognized by society. Germany cannot assert its role as a global R&D leader without a consistent, unabating and factual communication of the sector's value in the public domain.

Specifically, this means that Germany as a business and research location must offer companies more incentives so that more investments can take root in Germany. Together with digital preconditions (inter alia 5G networks), these include a consistent and business-friendly digitalization strategy, a functioning research infrastructure, skilled workers for clinical research and authorisation processes, a dismantling of red tape in the form of simplified approval and reimbursement procedures as well as equal rights to health data access for all players in research.

With tax breaks for research, protection of intellectual property and digitalization, the study focuses on three selected aspects which are among the decisive locational factors:

<p>Tax breaks for research</p> 	<p>Tax incentives to support research grants (Forschungszulagengesetz – FZuIG) have a direct impact on companies’ financial research budgets and provide incentives for more research activities in Germany.</p> <p>The following adjustments would be strongly welcomed:</p> <ul style="list-style-type: none"> ▪ Maintenance of the assessment basis at a maximum of 4 million Euro post 2026 with a view for an increase in the medium-term ▪ Fundamental discussion on the EU General Block Exemption Regulation (GBER) and on removing obstacles for SMEs ▪ Amendment of FZuIG with respect to the affiliated companies issue
<p>Protection of intellectual property</p> 	<p>Intellectual property is a driver of innovation in Europe and forms the basis of a successful health sector research. Protection of intellectual property helps innovative companies to amortise high R&D costs in a relatively short period between market entry and patent expiry. Without this protection, it would be impossible for companies to continue investing financial resources in the research and development of innovative products to the same extent. Moreover, the publication of patents ensures that new medical knowledge becomes directly available to be used by all.</p> <p>In this context, it is of decisive importance that:</p> <ul style="list-style-type: none"> ▪ The degree of protective rights for intellectual property should be maintained as an instrument against imitation, and ▪ Reliable framework conditions are created for innovations.
<p>Degree of digitalization</p> 	<p>Increasing the degree of digitalization in R&D by using innovative technologies reduces the duration and cost of research while enabling more rapid dissemination of knowledge. The resulting increase in research productivity can be sustained through permanent access to research results. Furthermore, use of the large amount of available care data can drive research forward, validate research results rapidly and enhance care.</p> <p>For example, the degree of digitalization can be increased by:</p> <ul style="list-style-type: none"> ▪ Moving ahead with digital transformation, ▪ Making data protection rules competitive in line with GDPR, ▪ Extending the deployment of disruptive technologies, and ▪ Ensuring a secure exchange of data.

Imprint

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